

METHOD FOR FORMING A MEMORY STRUCTURE USING A MODIFIED SURFACE TOPOGRAPHY AND STRUCTURE THEREOF

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Abstract of the Disclosure

To increase the gate coupling ratio of a semiconductor device 10, discrete elements 22, such as nanocrystals, are deposited over a floating gate 16. In one embodiment, the discrete elements 22 are pre-formed in a vapor phase and are attached to the semiconductor device 10 by electrostatic force. In one embodiment, the discrete elements 22 are pre-formed 10 in a different chamber than that where they are attached. In another embodiment, the same chamber is used for the entire deposition process. An optional, interfacial layer 17 may be formed between the floating gate 16 and the discrete elements 22.